

# Notice of Allowability

Application No.

10/779,939

Examiner

Rip A. Lee

Applicant(s)

NAGY ET AL.

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to October 21, 2005.
2. ☒ The allowed claim(s) is/are 1-21.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### **EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

Claim 1, line 8            replace "coordinates" with "is coordinated to"

Claim 13, line 9        replace "coordinates" with "is coordinated to"

Claim 19, line 10       replace "coordinates" with "is coordinated to"

Claim 21, line 1        replace "having" with "wherein the clathrochelate has"

*Allowable Subject Matter*

The following is an examiner's statement of reasons for allowance: Claims 1-21 are allowed over the closest references cited below.

The present invention is drawn to a catalyst comprising an activator and a clathrochelate, wherein the clathrochelate comprises a transition metal ion and a macropolycyclic ligand that encapsulates the transition metal ion wherein the macropolycyclic ligand has at least three macropolycyclic fragments that share at least two capping atoms, at least one of the capping atoms is a group 3-10 transition metal, and the transition metal ion is coordinated to five or more N, P, O, or S, atoms of the macropolycyclic ligand.

Another embodiment of the invention is an activator comprising an alkylaluminum compound and a clathrochelate, wherein the clathrochelate comprises a transition metal ion and a macropolycyclic ligand that encapsulates the transition metal ion wherein the macropolycyclic ligand has at least three macropolycyclic fragments that share at least two capping atoms, at least one of the capping atoms is a group 13 atom, and the transition metal ion is coordinated to five or more N, P, O, or S, atoms of the macropolycyclic ligand.

A further aspect of the invention is a process comprising polymerizing an olefin in the presence of a clathrochelate which comprises The present invention is drawn to a catalyst comprising an activator and a clathrochelate, wherein the clathrochelate comprises a transition metal ion and a macropolycyclic ligand that encapsulates the transition metal ion wherein the macropolycyclic ligand has at least three macropolycyclic fragments that share at least two capping atoms, at least one of the capping atoms is a group 3-10 transition metal or a group 13 atom, and the transition metal ion is coordinated to five or more N, P, O, or S, atoms of the macropolycyclic ligand.

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Voloshin *et al.* (*J. Organomet. Chem.* 1997, *Inorg. Chem.*, 2000, and *J. Chem. Soc., Dalton Trans.*, 2002), Muller *et al.* (*J. Am. Chem. Soc.*, 1986), Boston *et al.* (*J. Am. Chem. Soc.*, 1968 and 1973), and Robbins *et al.* (*Inorg. Chem.*, 1985) disclose clathrochelate complexes which contain structural features that are essentially the same as those of the instant claims. None of the references teaches or remotely suggests use of the clathrochelate complexes in combination with an activator as a catalyst for polymerization of olefin. One of ordinary skill in the art would not have found it obvious to arrive at the subject matter of the instant claims in light of the teachings of the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (571)272-1114. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <<http://pair-direct.uspto.gov>>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

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December 26, 2005



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